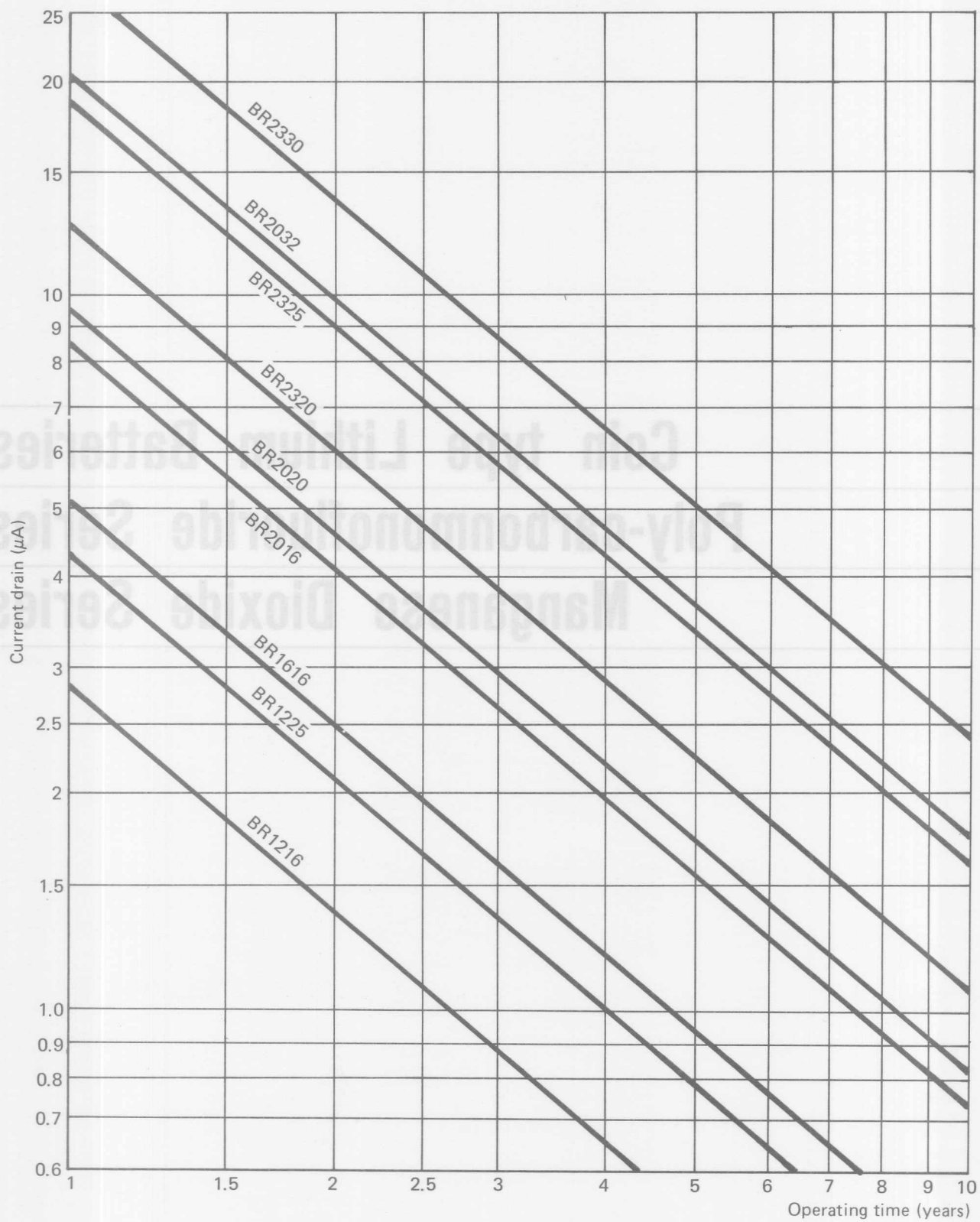


Coin type Lithium Batteries




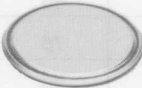
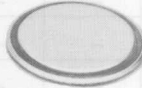
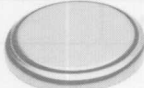







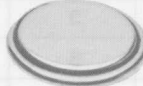
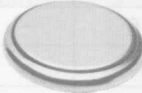
Poly-carbonmonofluoride Series

Manganese Dioxide Series

Battery Selector Guide



Specifications

					
BR1216	BR1225	BR1616	BR2016	BR2020	
					
BR2032	BR2320	BR2325	BR2330		
					
CR1216	CR1220	CR1616	CR2016	CR2025	CR2032

General description

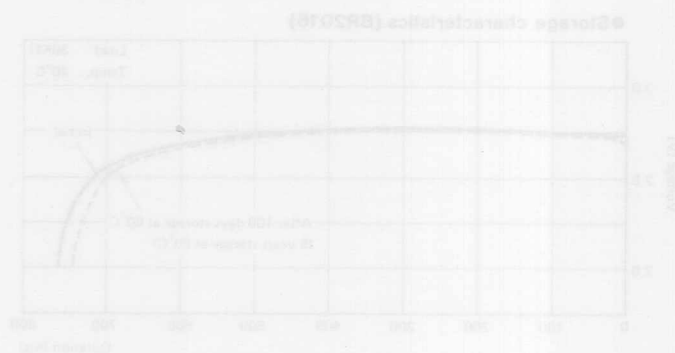
National coin type lithium batteries are high energy, high reliability batteries for consumer appliances developed first by National combining the best of National's battery technologies.

The full 3 volts in these high energy density batteries is about twice that of conventional batteries.

Two types of coin type lithium batteries are available — poly-carbonmonofluoride lithium batteries (BR series) for uses that require extended reliability and safety, and manganese dioxide lithium batteries (CR series) for uses that require high voltage and strong load pulse characteristics.

Features

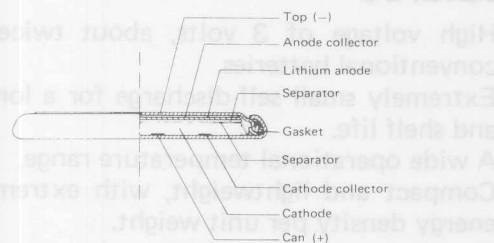
- High voltage of 3 volts, about twice that of conventional batteries.
- Extremely small self-discharge for a long service and shelf life.
- A wide operational temperature range.
- Compact and lightweight, with extremely high energy density per unit weight.
- Extremely safe (poly-carbonmonofluoride lithium batteries)
- Extremely strong load pulse characteristics (manganese dioxide lithium batteries).



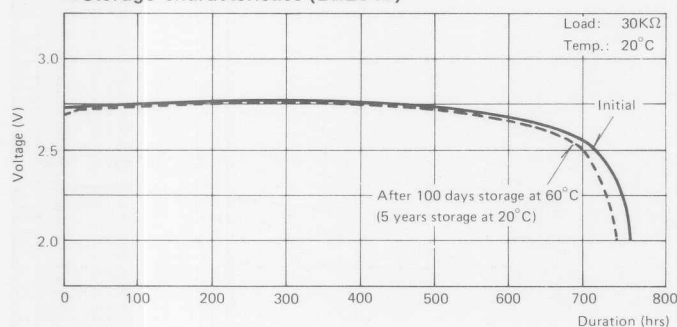
Model No.	JIS	IEC	Electrical Characteristics (20°C)				Dimensions		Weight (g)	Others
			Nominal Voltage (V)	Nominal Capacity (mAh)	Recommended Drain		Diameter (mm)	Height (mm)		
					High (mA)	Standard (mA)				
BR1216	—	—	3	25	5	0.1	12.5	1.6	0.6	
BR1225	—	—	3	38	8	0.1	12.5	2.5	0.9	
BR1616	—	—	3	45	8	0.1	16.0	1.6	1.0	
BR2016	—	—	3	75	10	0.1	20.0	1.6	1.5	
BR2020	—	—	3	85	10	0.2	20.0	2.0	1.8	
BR2320	—	—	3	110	10	0.2	23.0	2.0	2.5	
BR2325	—	—	3	165	10	0.2	23.0	2.5	3.0	
BR2032	—	—	3	180	10	0.2	20.0	3.2	3.0	
BR2330	—	—	3	250	10	0.3	23.0	3.0	3.1	

Model No.	JIS	IEC	Electrical Characteristics (20°C)				Dimensions		Weight (g)	Others
			Nominal Voltage (V)	Nominal Capacity (mAh)	Recommended Drain		Diameter (mm)	Height (mm)		
					High (mA)	Standard (mA)				
CR1216	—	—	3	25	5	0.1	12.5	1.6	0.7	
CR1220	—	—	3	35	5	0.1	12.5	2.0	0.9	
CR1616	—	—	3	50	8	0.1	16.0	1.6	1.2	
CR2016	CR2016	—	3	70	10	0.1	20.0	1.6	1.7	LF-1/4V
CR2025	CR2025	—	3	120	15	0.2	20.0	2.5	2.5	
CR2032	CR2032	—	3	180	15	0.2	20.0	3.2	3.0	LF-1/2V

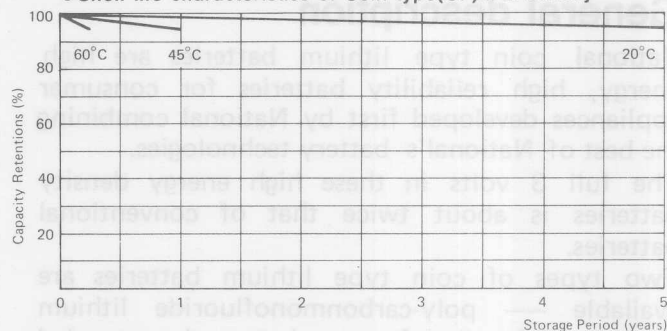
● Cutaway View



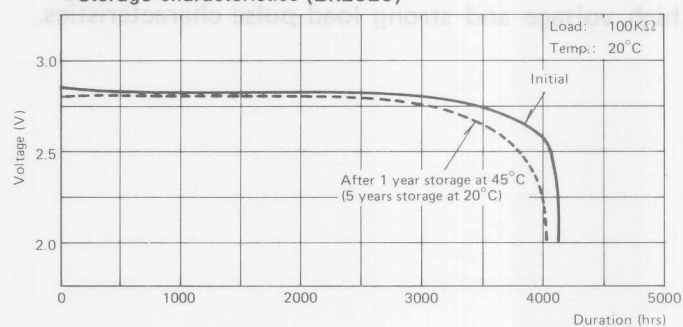
● Storage characteristics (BR2016)



● Shelf life characteristics of Coin type(CF)n/Li battery

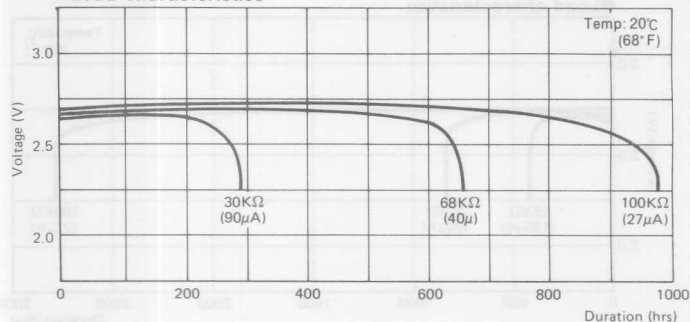


● Storage characteristics (BR2320)

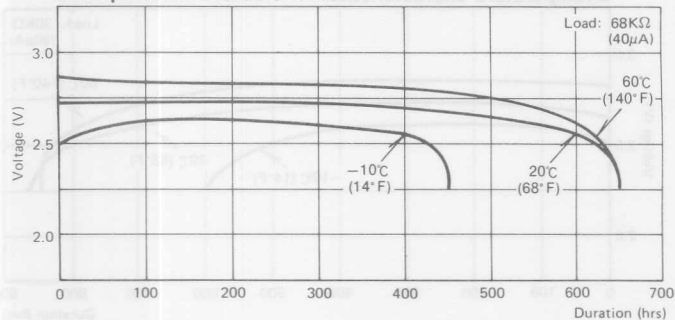


BR1216

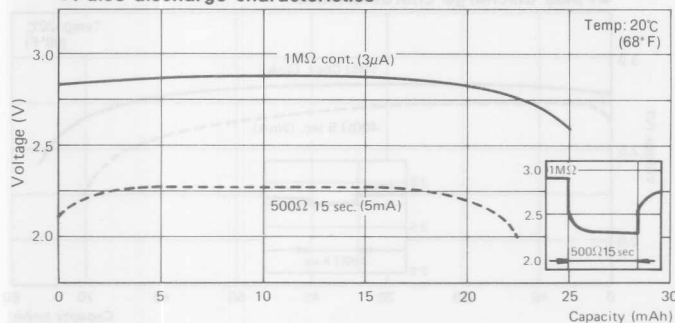
● Load characteristics



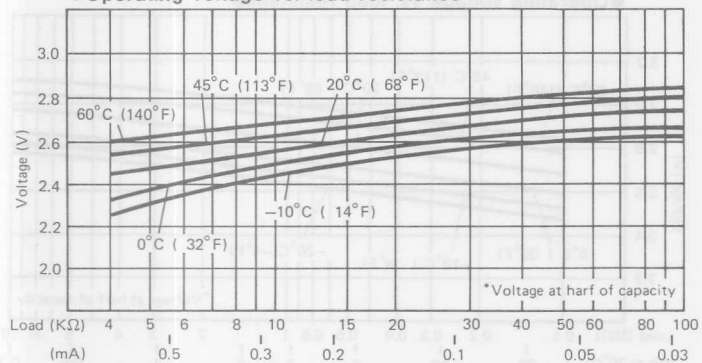
● Temperature characteristics



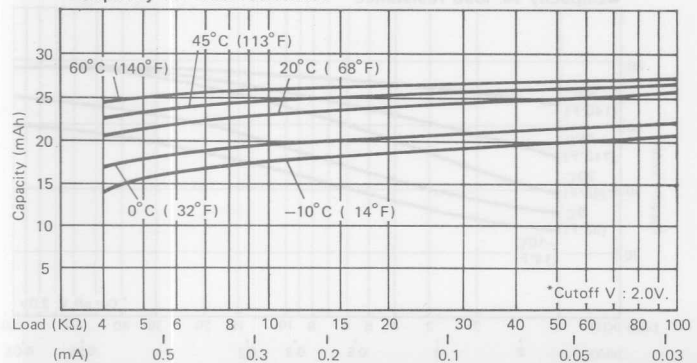
● Pulse discharge characteristics



● Operating voltage vs. load resistance

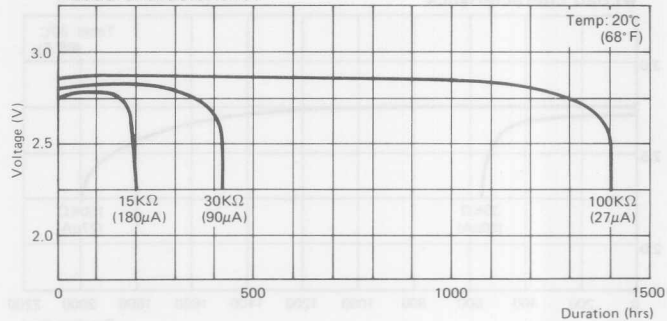


● Capacity vs. load resistance

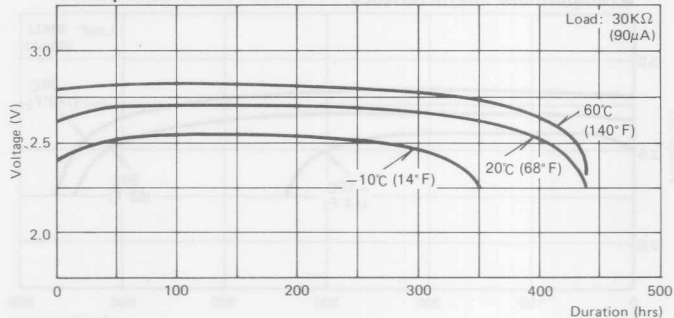


BR1225

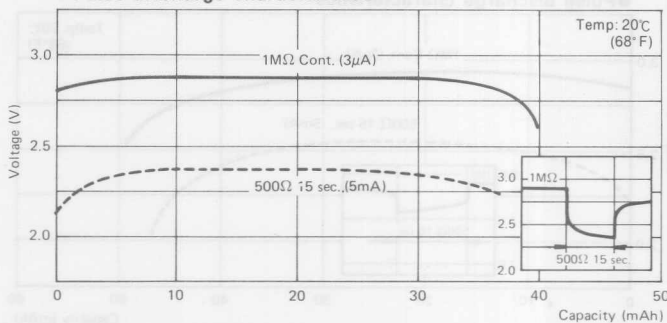
● Load characteristics



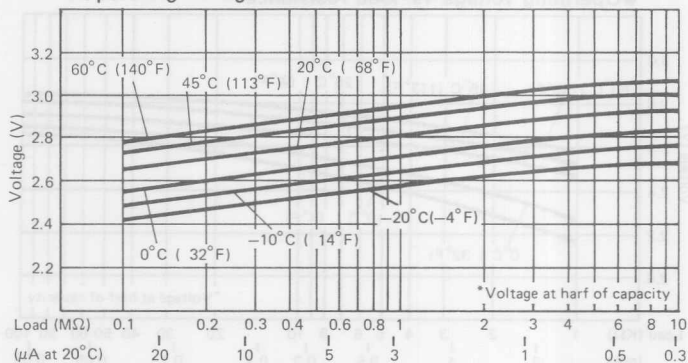
● Temperature characteristics



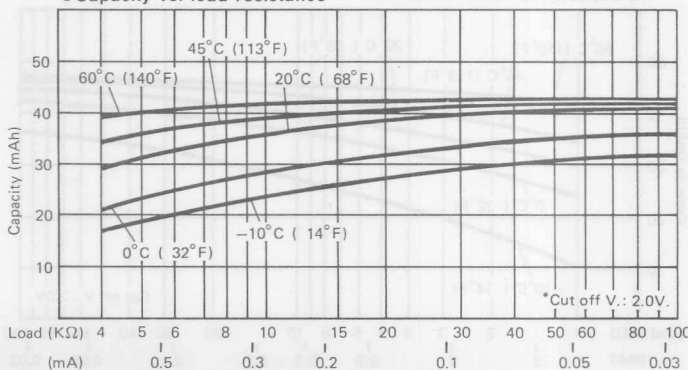
● Pulse discharge characteristics



● Operating voltage vs. load resistance

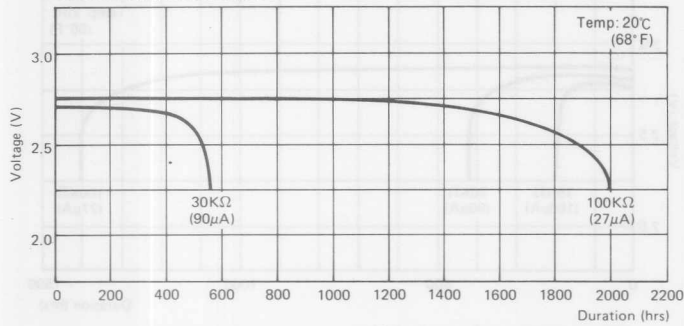


● Capacity vs. load resistance

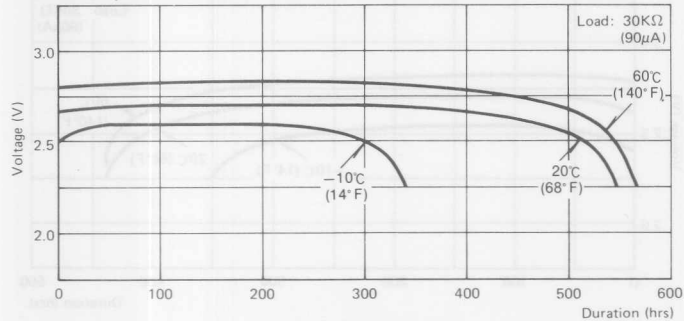


BR1616

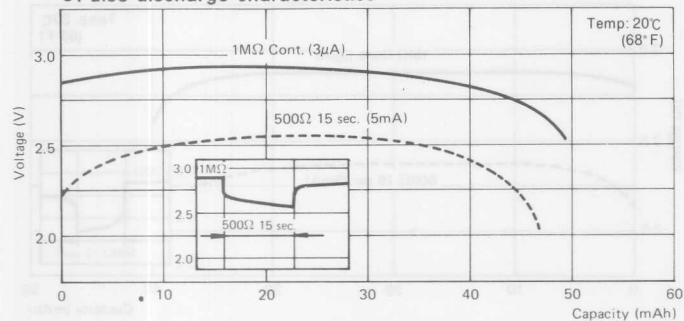
● Load characteristics



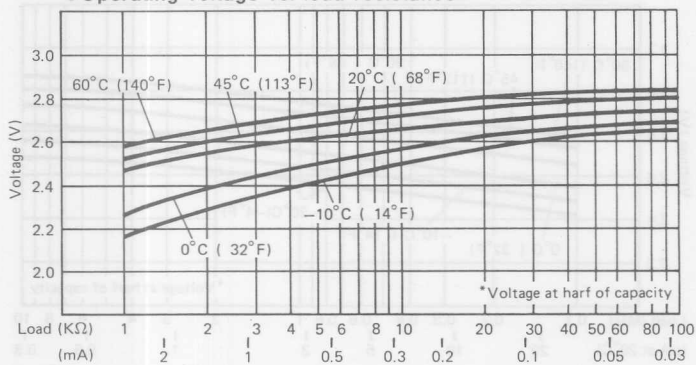
● Temperature characteristics



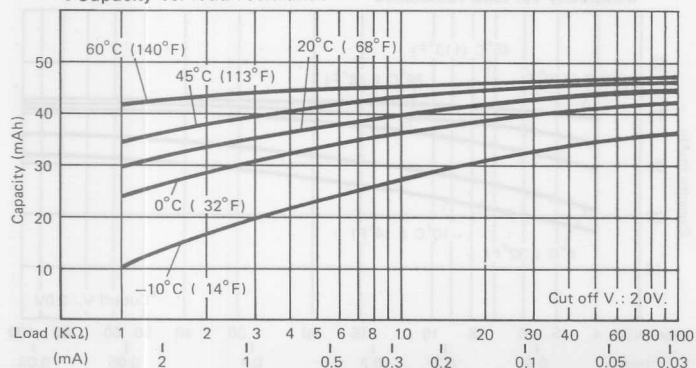
● Pulse discharge characteristics



● Operating voltage vs. load resistance

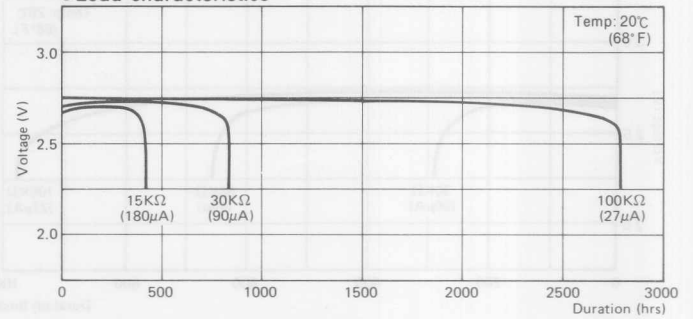


● Capacity vs. load resistance

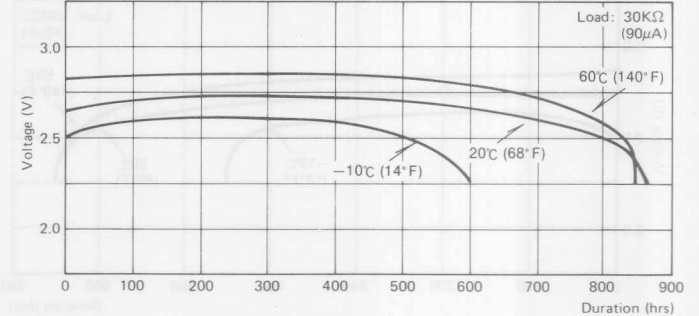


BR2016

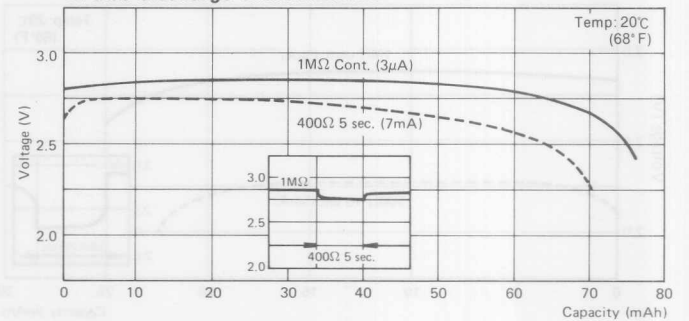
● Load characteristics



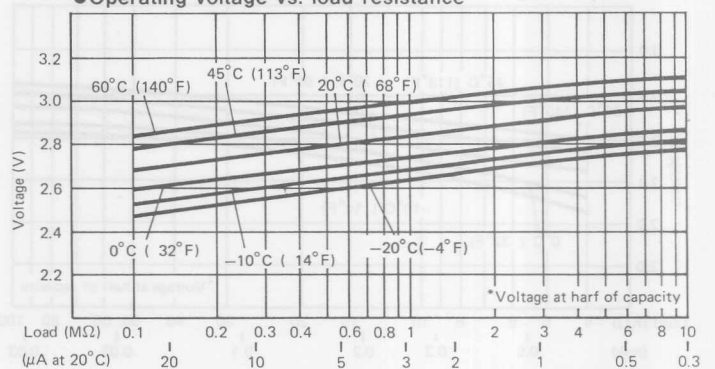
● Temperature characteristics



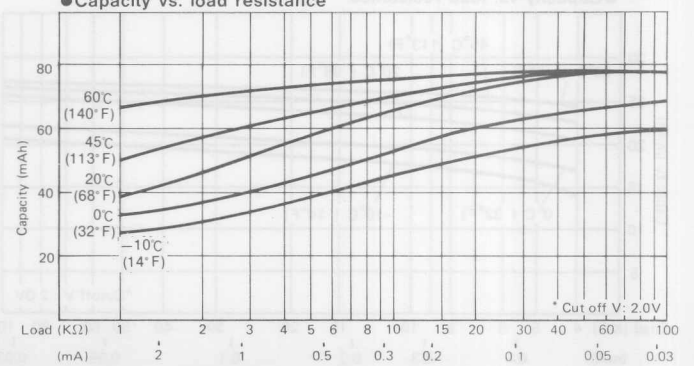
● Pulse discharge characteristics



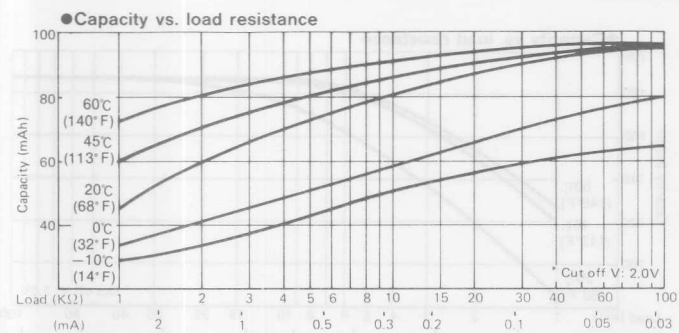
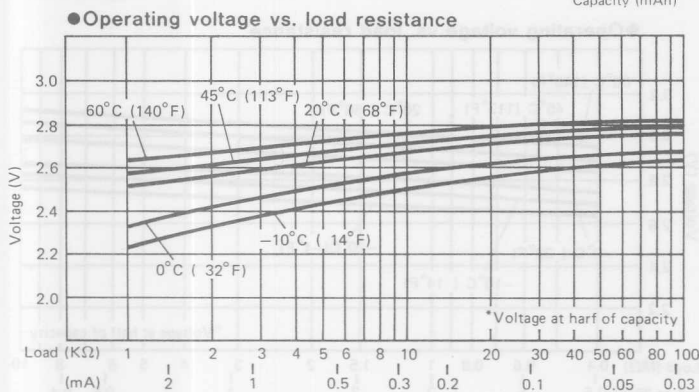
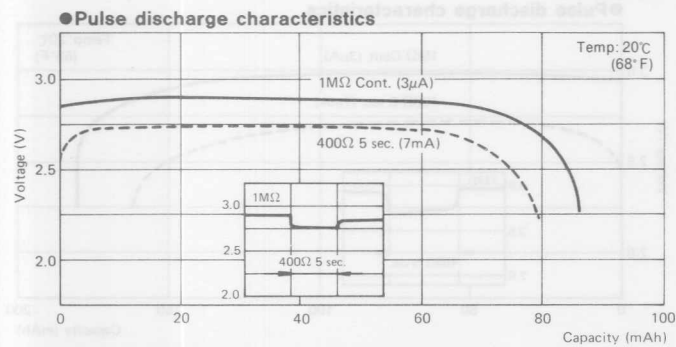
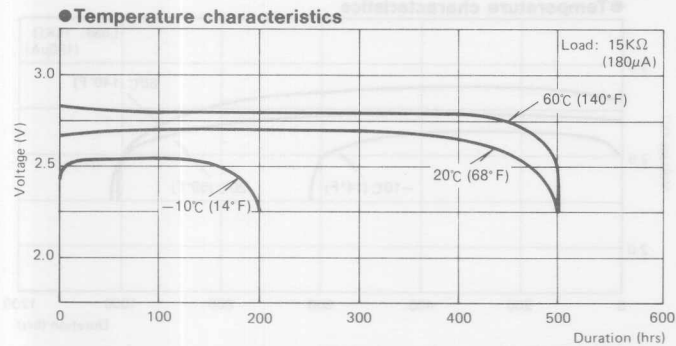
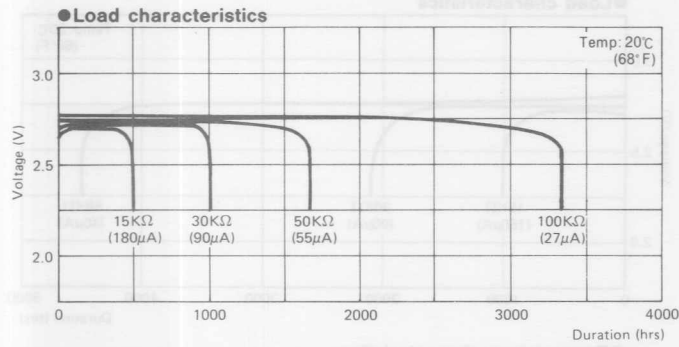
● Operating voltage vs. load resistance



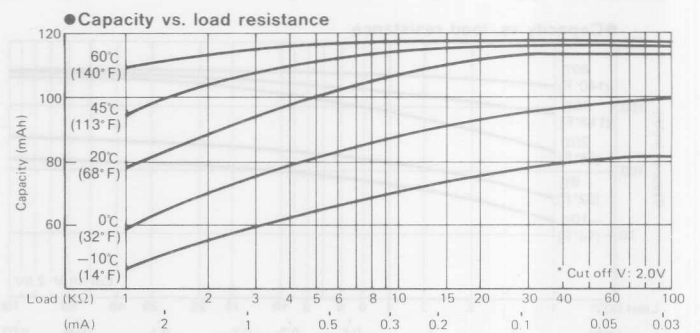
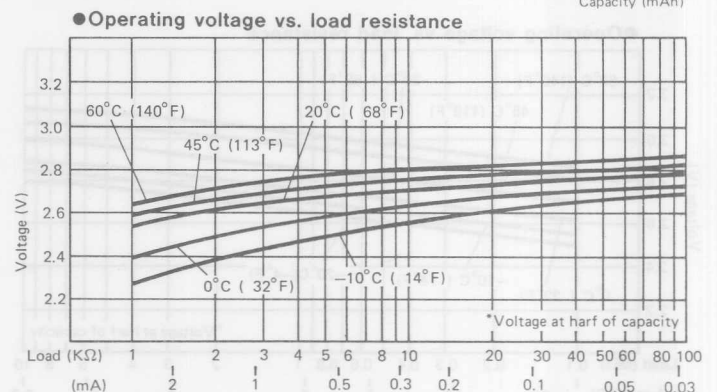
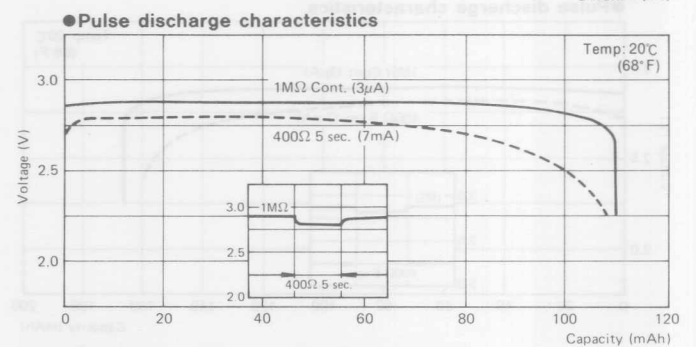
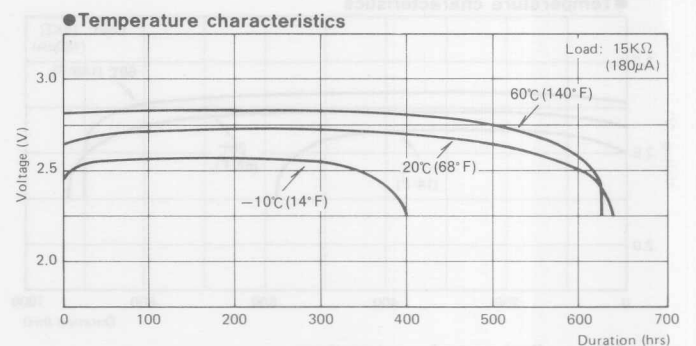
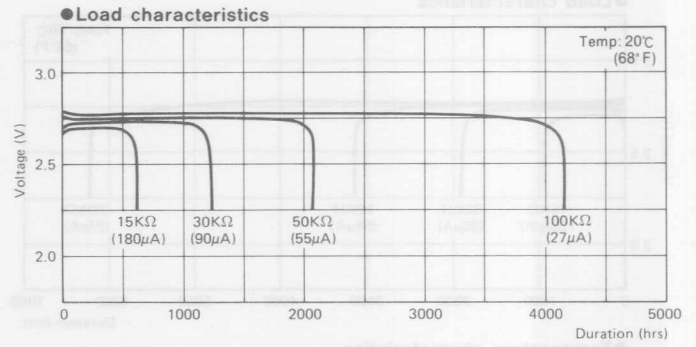
● Capacity vs. load resistance



BR2020

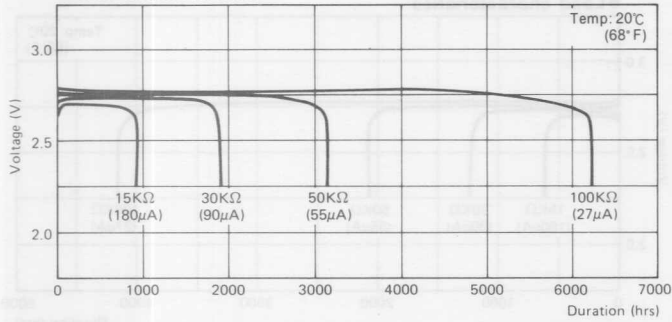


BR2320

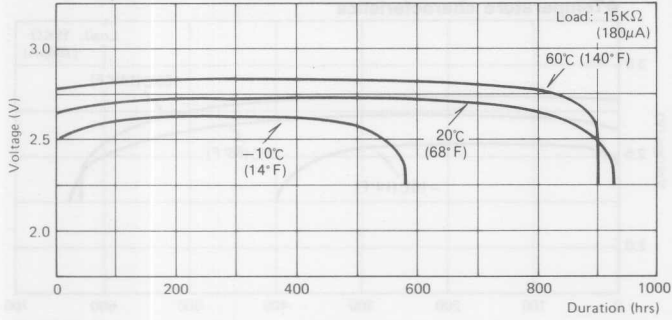


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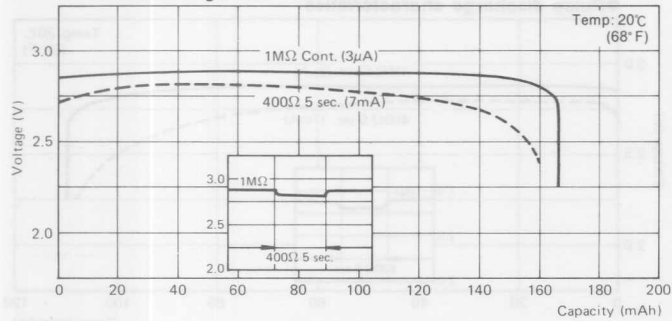
● Load characteristics



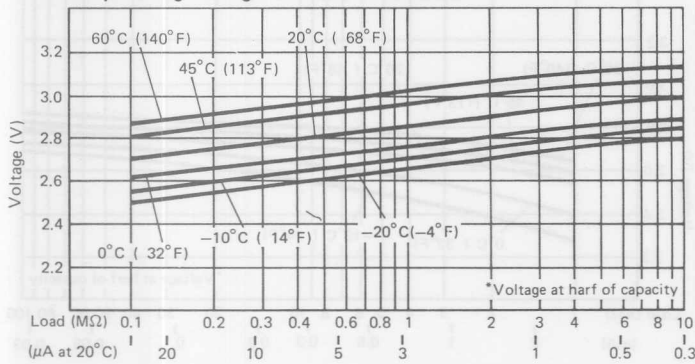
● Temperature characteristics



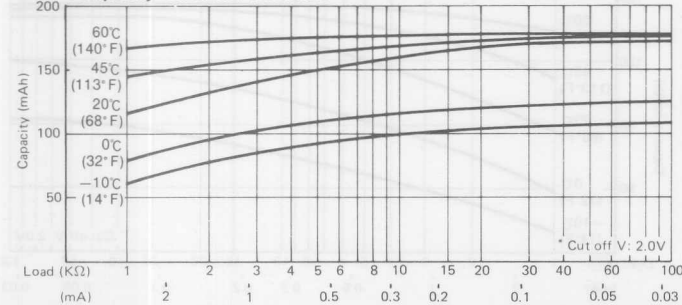
● Pulse discharge characteristics



● Operating voltage vs. load resistance

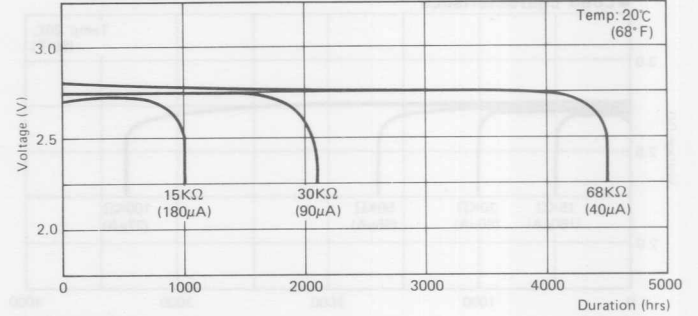


● Capacity vs. load resistance

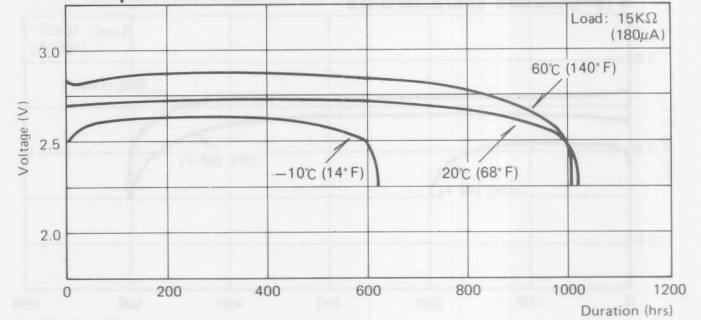


BR2032

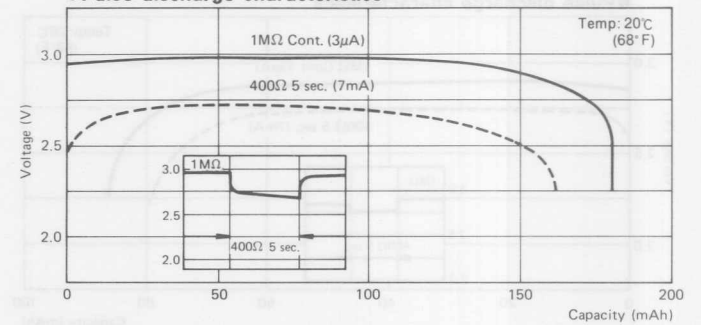
● Load characteristics



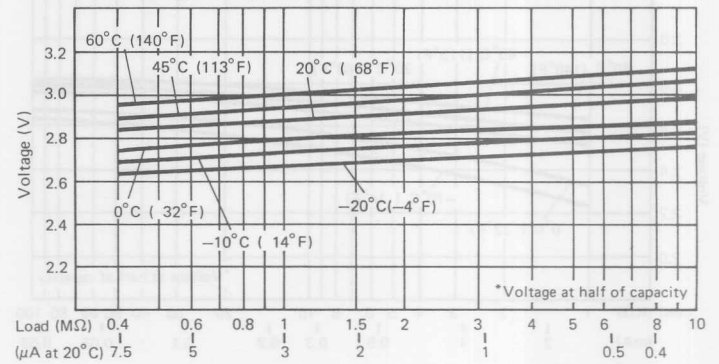
● Temperature characteristics



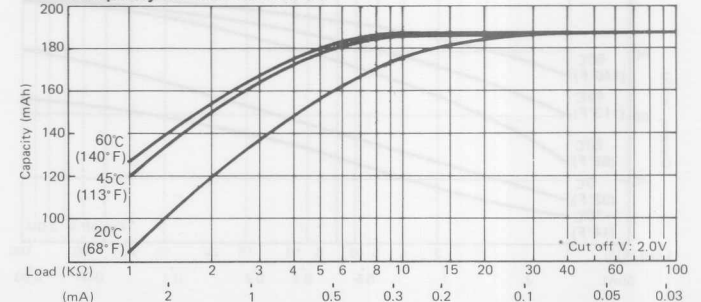
● Pulse discharge characteristics



● Operating voltage vs. load resistance

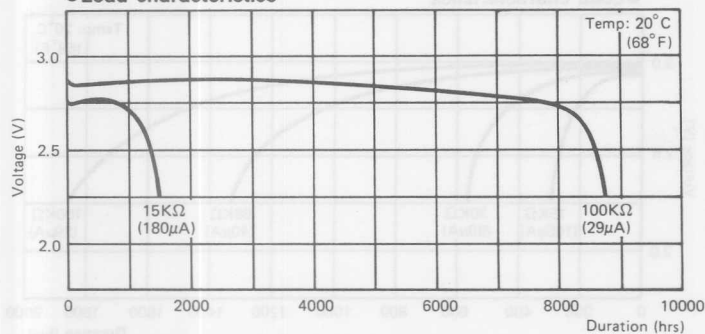


● Capacity vs. load resistance

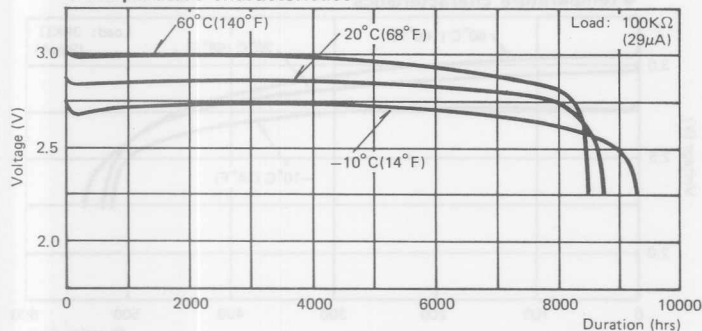


BR2330

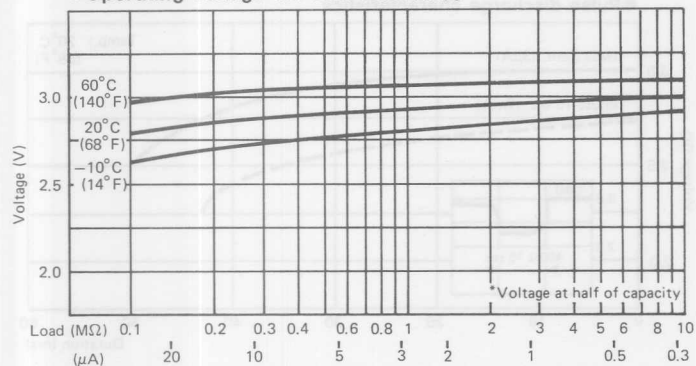
● Load characteristics



● Temperature characteristics

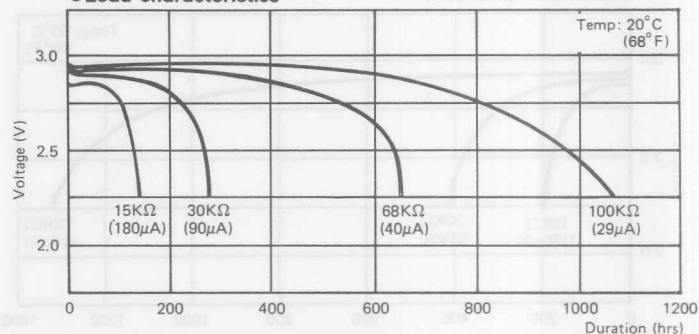


● Operating voltage vs. load resistance

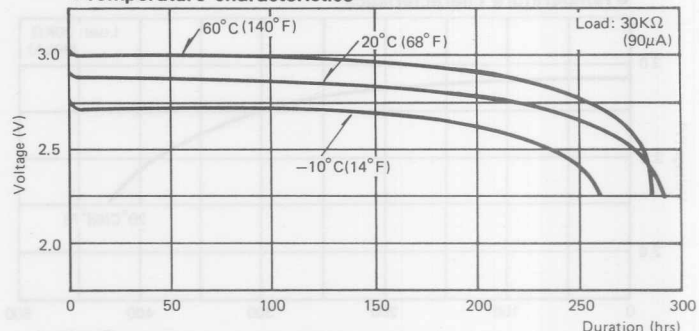


CR1216

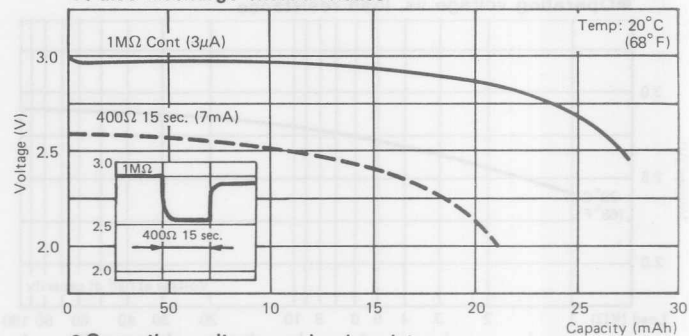
● Load characteristics



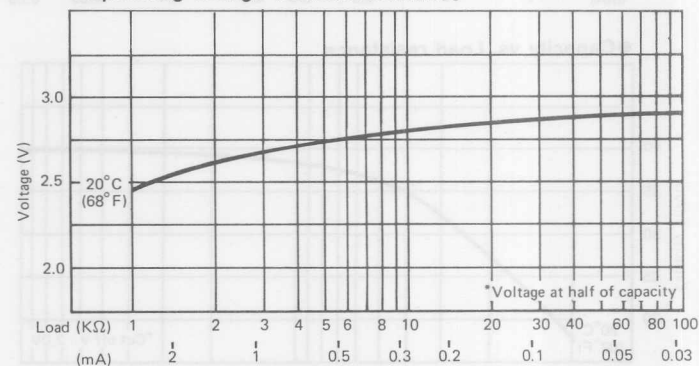
● Temperature characteristics



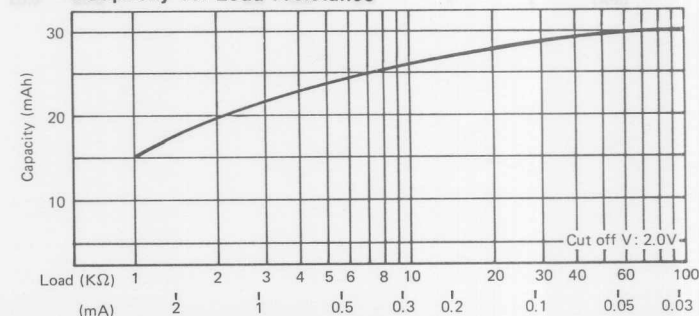
● Pulse discharge characteristics



● Operating voltage vs. load resistance

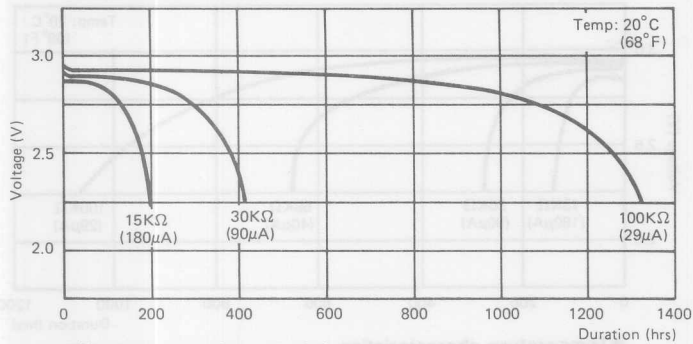


● Capacity vs. Load resistance

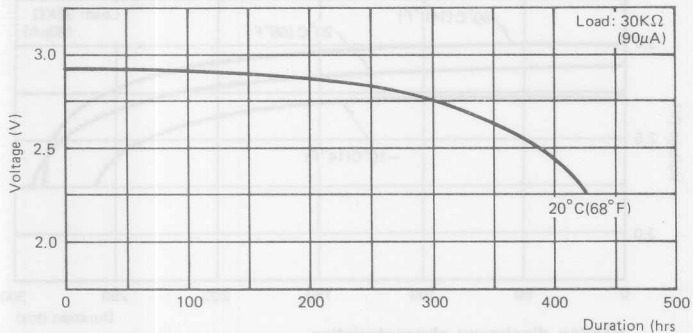


CR1220

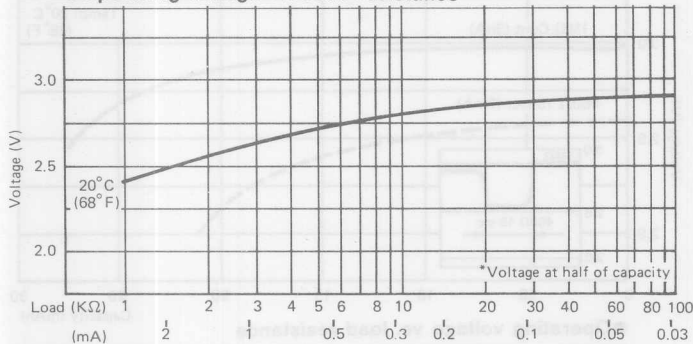
● Load characteristics



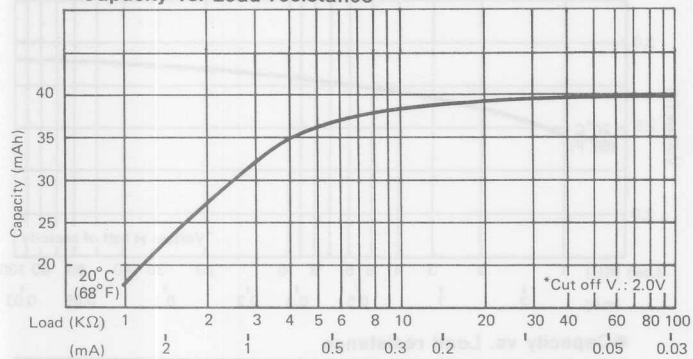
● Temperature characteristics



● Operating voltage vs. load resistance

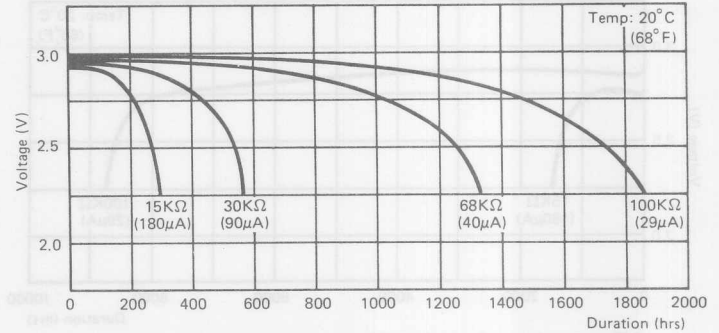


● Capacity vs. Load resistance

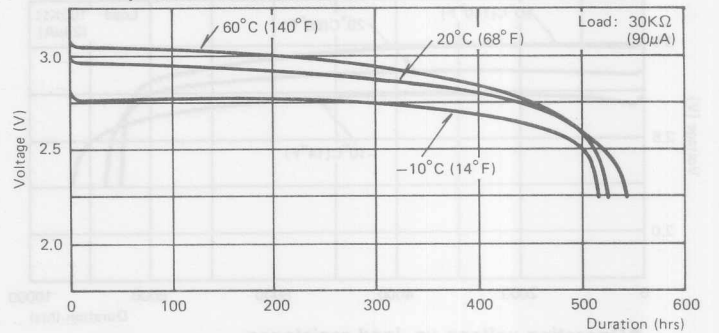


CR1616

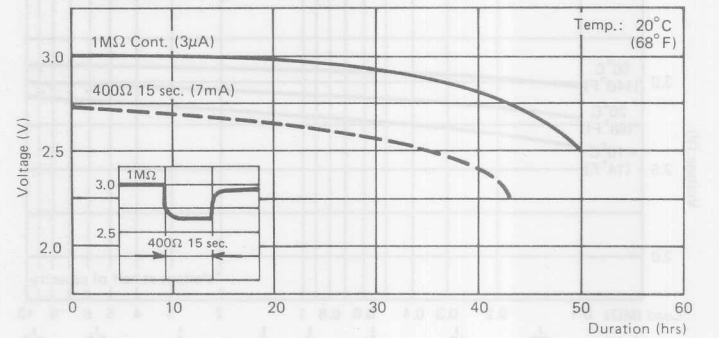
● Load characteristics



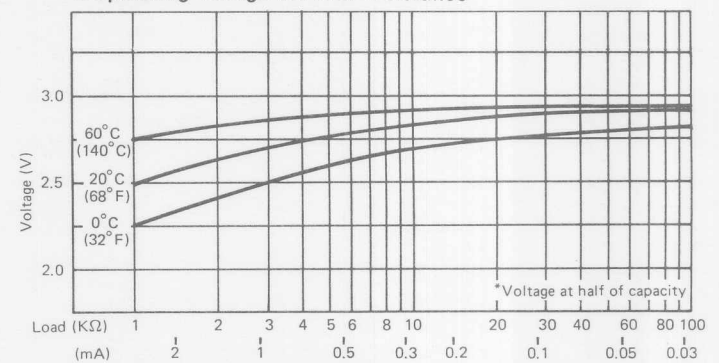
● Temperature characteristics



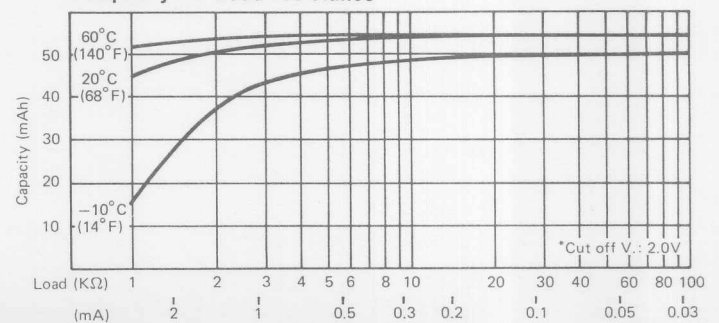
● Pulse discharge characteristics



● Operating voltage vs. load resistance

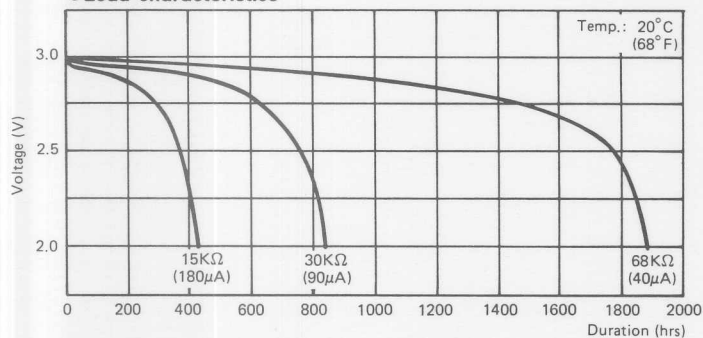


● Capacity vs. Load resistance

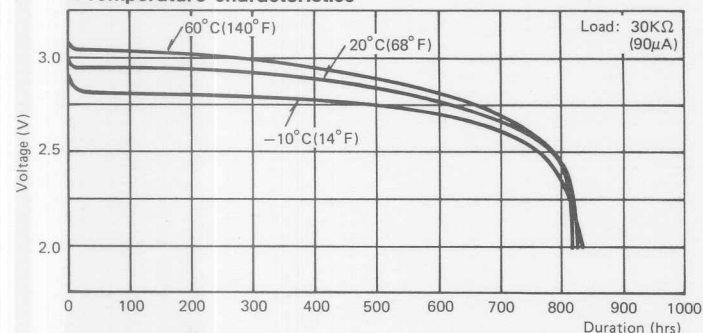


CR2016

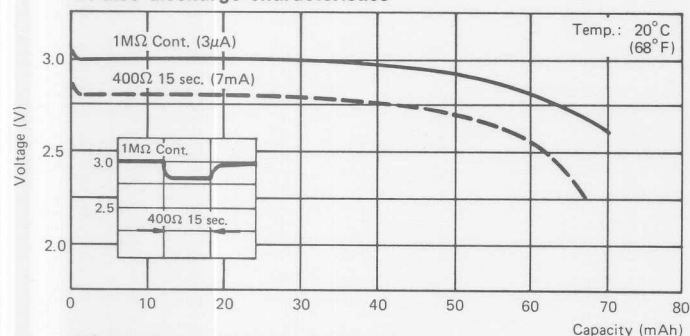
● Load characteristics



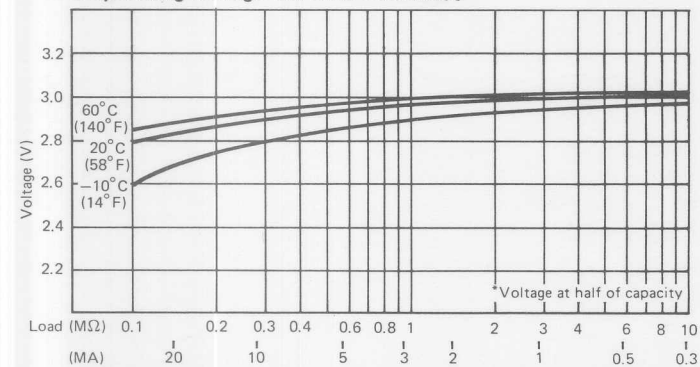
● Temperature characteristics



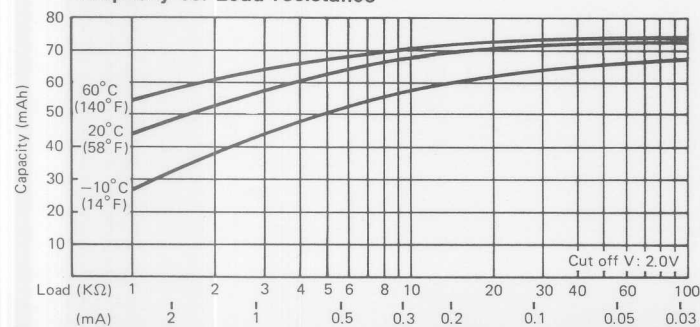
● Pulse discharge characteristics



● Operating voltage vs. load resistance

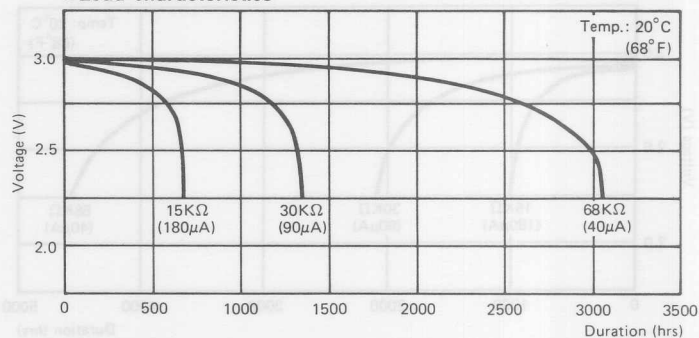


● Capacity vs. Load resistance

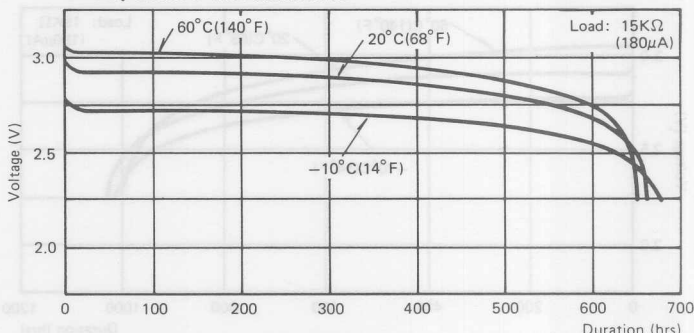


CR2025

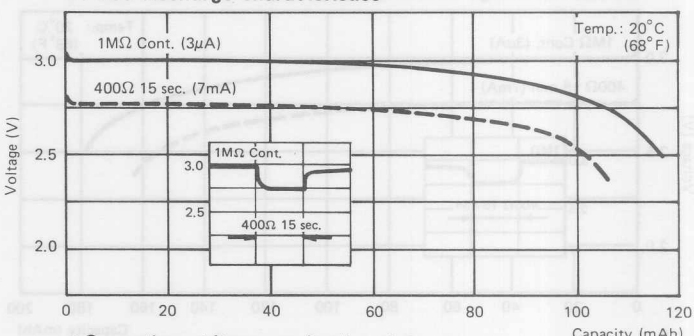
● Load characteristics



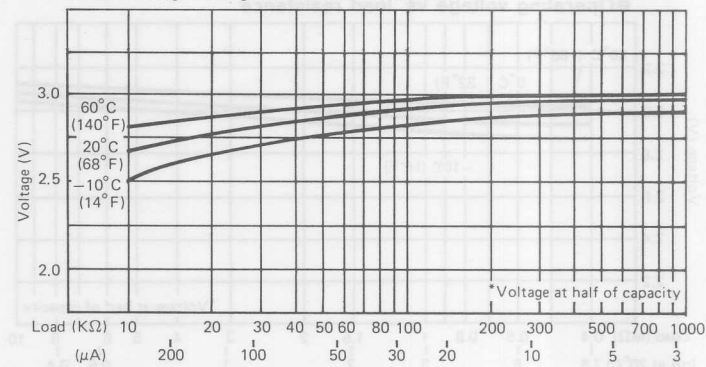
● Temperature characteristics



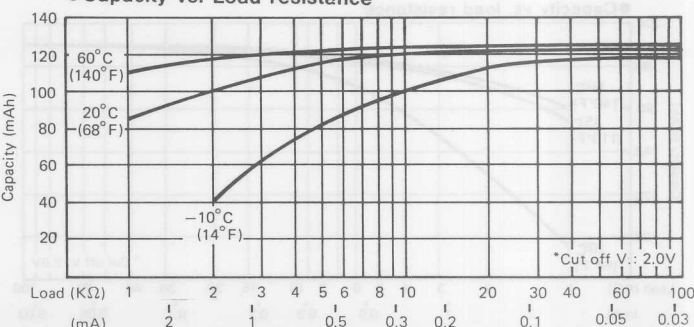
● Pulse discharge characteristics



● Operating voltage vs. load resistance

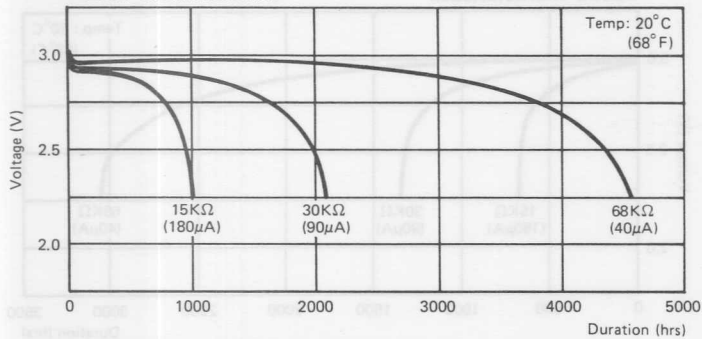


● Capacity vs. Load resistance

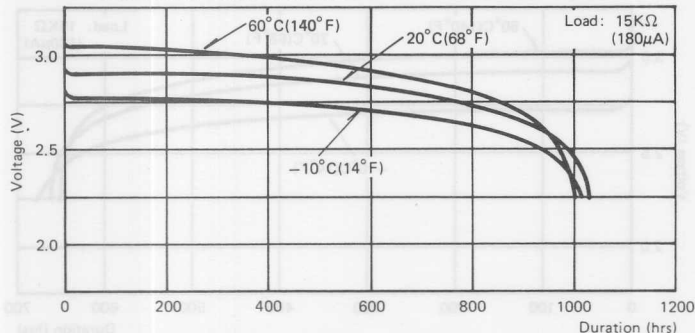


CR2032

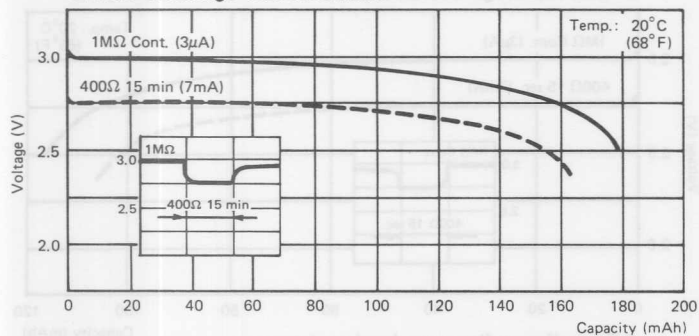
● Load characteristics



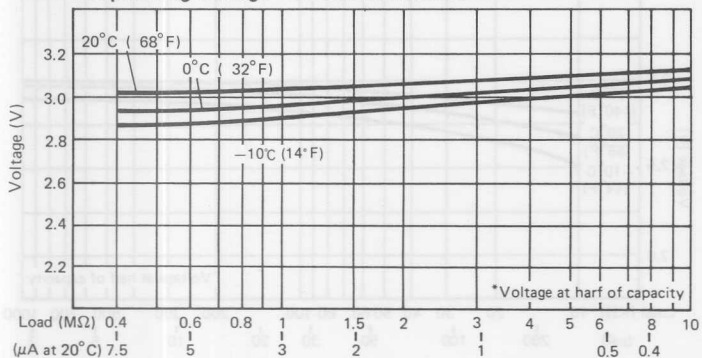
● Temperature characteristics



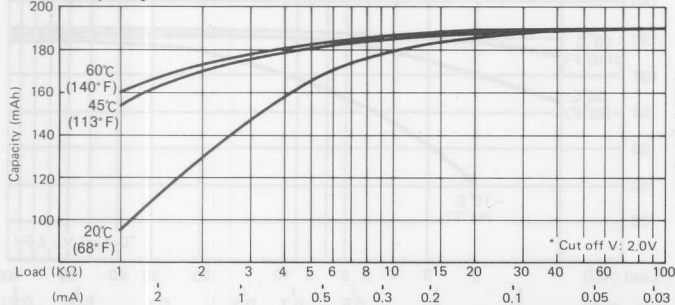
● Pulse discharge characteristics



● Operating voltage vs. load resistance

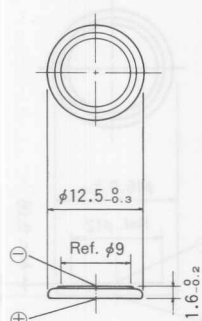


● Capacity vs. load resistance

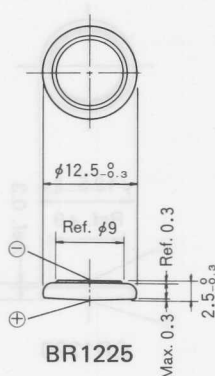


●Dimensions (mm)

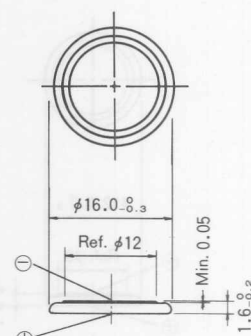
(mm) enoitemiD



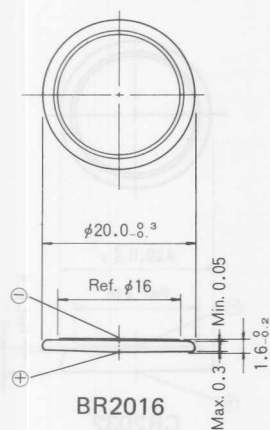
BR1216



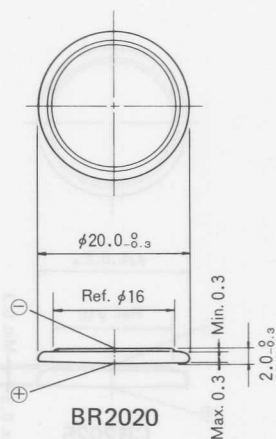
BR1225



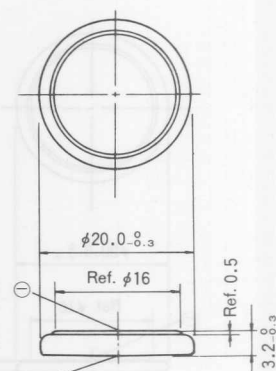
BR1616



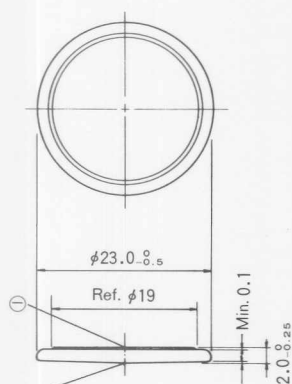
BR2016



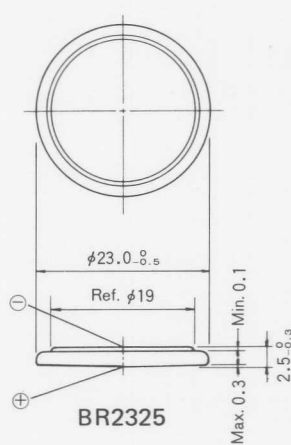
BR2020



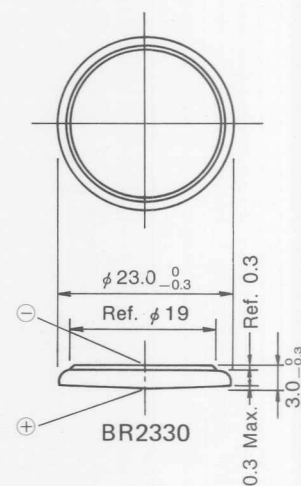
BR2032



BR2320

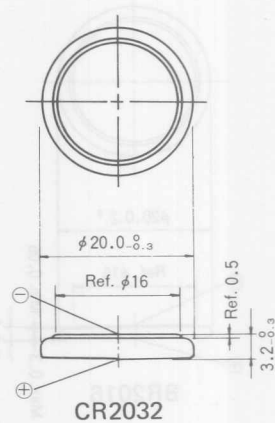
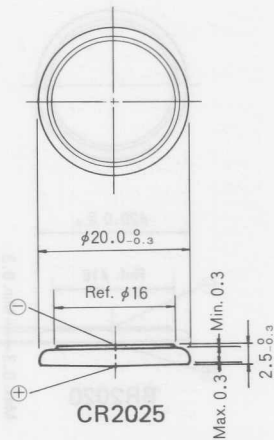
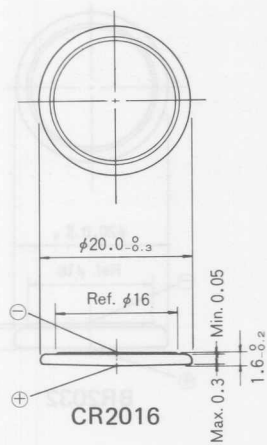
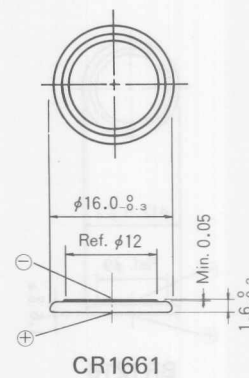
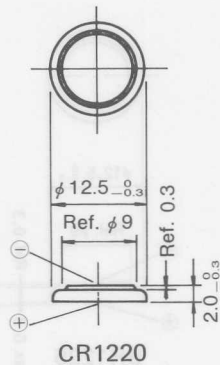
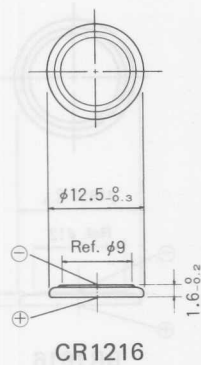


BR2325

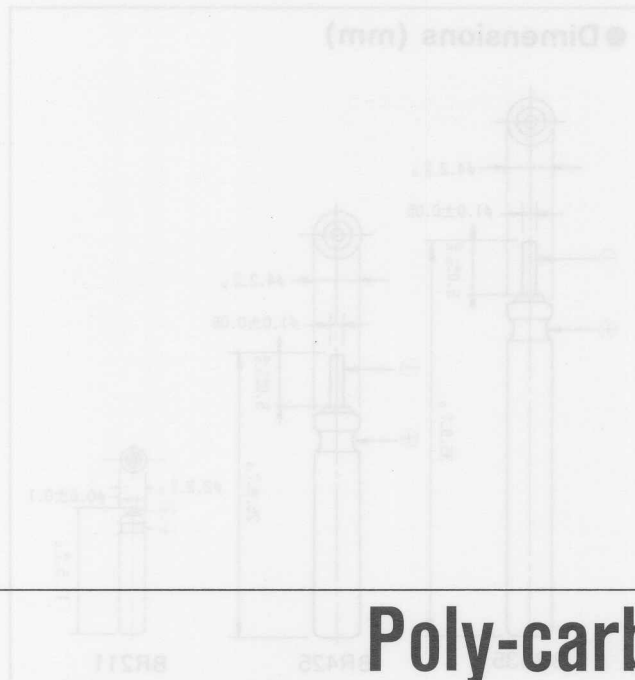


BR2330

●Dimensions (mm)



• Cutaway View



Poly-carbonmonofluoride Lithium Batteries Pin type Lithium Batteries

Can be installed easily to pin jack holders without test of misconnection.

• Pin terminal for easy connection

resistance to leakage.

Extremely small self-discharge and excellent

• Long service and storage life

temperatures.

Superb characteristics even at extremely low

• Excellent temperature characteristics

required for light-emitting diodes.

Because of their high 3-volt capacity, only one is

• Twice the voltage of conventional dry batteries

case.

weight through the use of an aluminum battery

Slim, high energy density batteries made light-

battery technologies.

first by National, combining the best of National

weight batteries with a unique design developed

Specifications

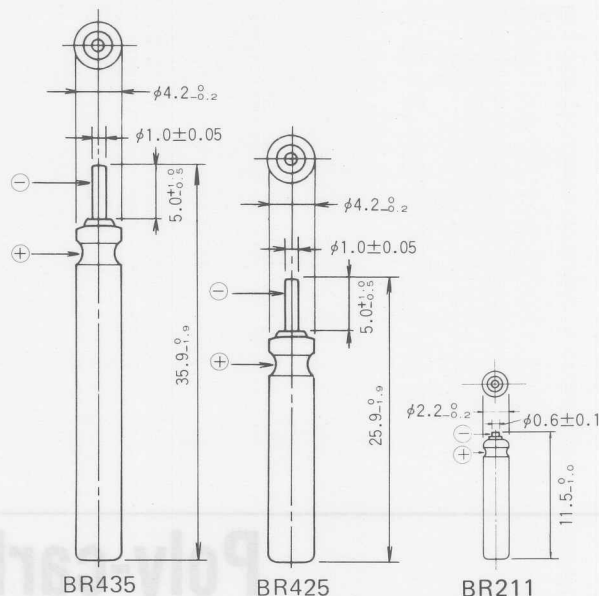
Model No.	Nominal Voltage (V)	Nominal Capacity (mAh)			Recommended Drain (mA)			Dimensions (mm)		Weight (g)	Operating Temperature Range (°C)
		10 min	1 hr	3 hr	10 min	1 hr	3 hr	Height	Diameter		
BR435	3	80	80	80	1	1	1	4.3	38.9	0.9	-20 ~ +60
BR432	3	35	35	35	4	4	4	4.3	38.9	0.8	-20 ~ +60
BR431	3	2.5	2.5	2.5	0.08	0.08	0.08	3.3	11.8	0.09	-10 ~ +60

Note: Nominal capacity shown above is based on standard drain.

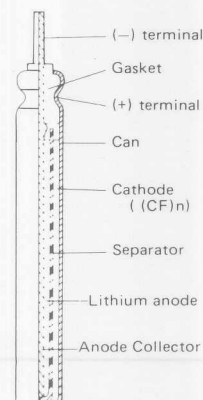
Specifications



● Dimensions (mm)



● Cutaway View



* CONNECTOR: Part No. BR-400S for BR435, BR425, Contact National

General Description

National pin type lithium batteries are slim, lightweight batteries with a unique design developed first by National, combining the best of National battery technologies.

Features

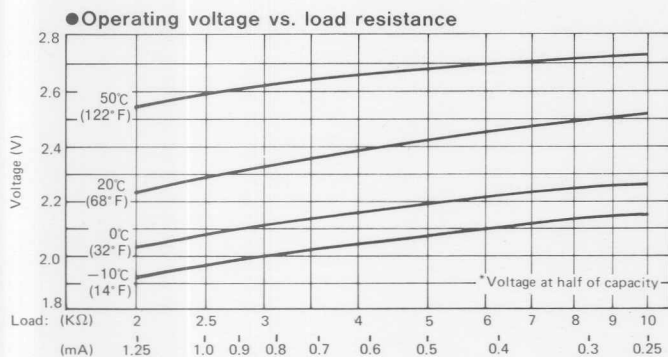
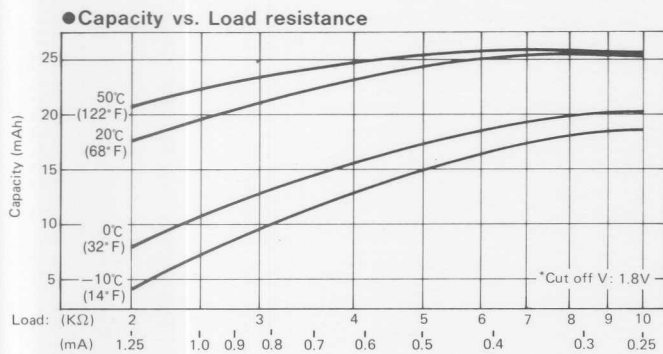
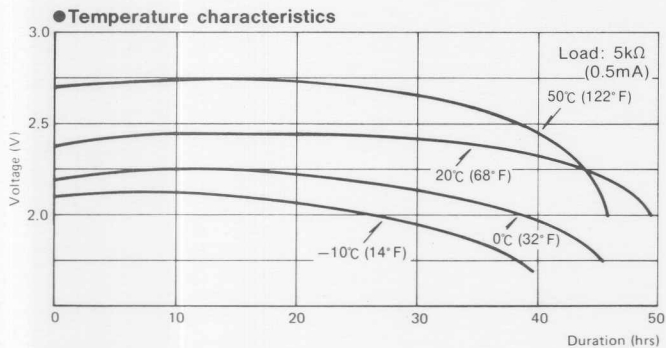
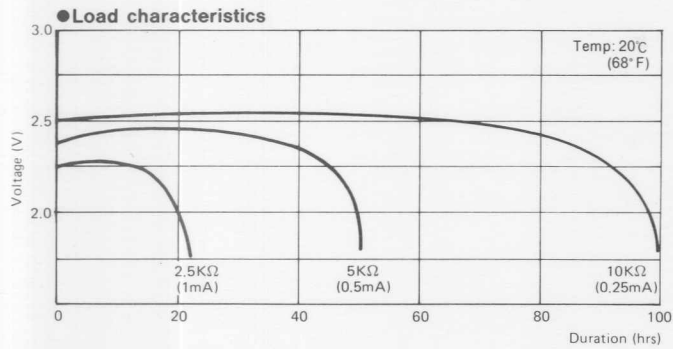
- **Compact and lightweight**
Slim, high energy density batteries made lightweight through the use of an aluminum battery case.
- **Twice the voltage of conventional dry batteries**
Because of their high 3-volt capacity, only one is required for light-emitting diodes.
- **Excellent temperature characteristics**
Superb characteristics even at extremely low temperatures.
- **Long service and storage life**
Extremely small self-discharge and excellent resistance to leakage.
- **Pin terminal for easy connection**
Can be installed easily to pin jack holders without fear of misconnection.

Specifications

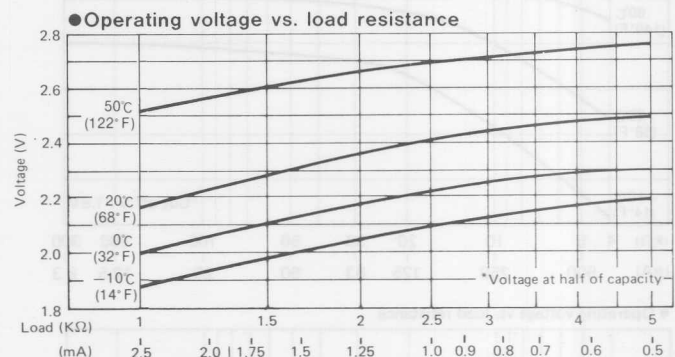
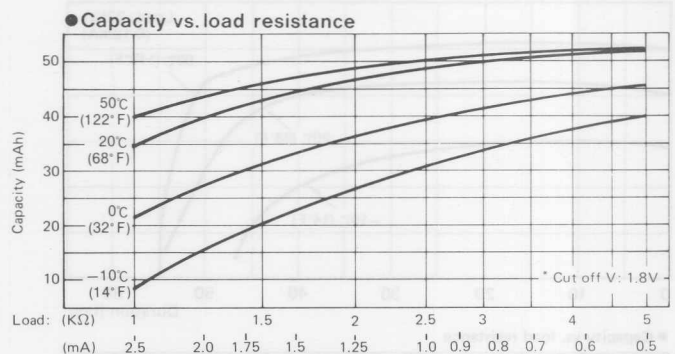
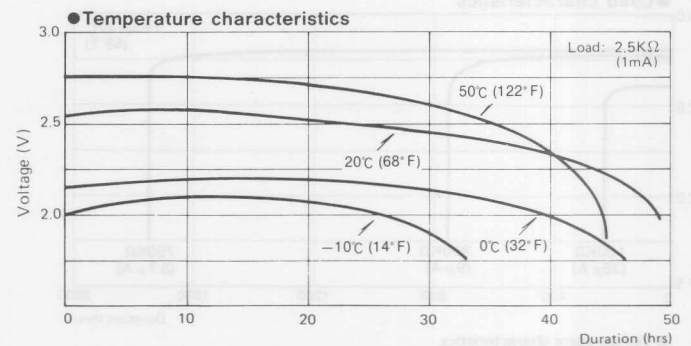
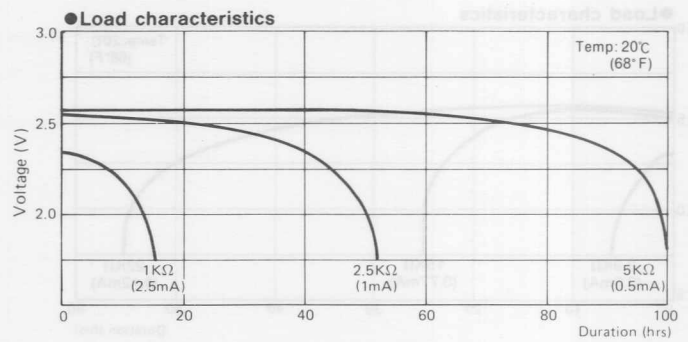
Model No.	Electrical Characteristics				Dimensions		Weight (g)	Operating Temperature Range (°C)
	Nominal Voltage (V)	Nominal Capacity (mAh)	Recommended Drain		Diameter (mm)	Height (mm)		
BR211	3	5.4	Pulse (mA)	Standard (mA)	2.2	11.5	0.09	-10 ~ +60
BR425	3	25	4	0.5	4.2	25.9	0.6	-20 ~ +60
BR435	3	50	6	1	4.2	35.9	0.9	-20 ~ +60

Note: Nominal capacity shown above is based on standard drain.

BR425



BR435

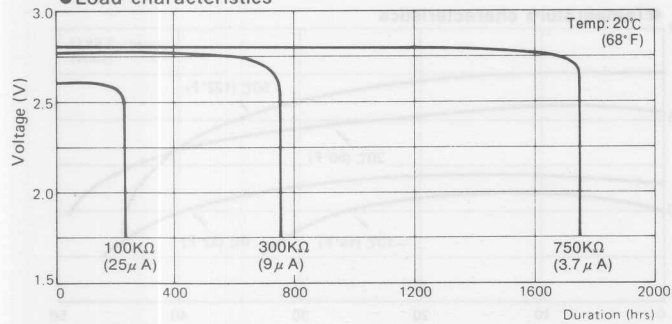


BR211

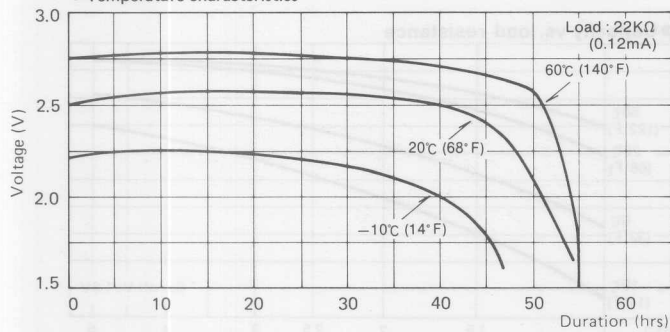
● Load characteristics



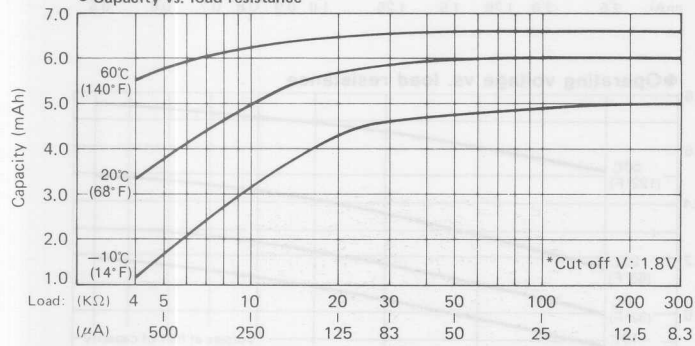
● Load characteristics



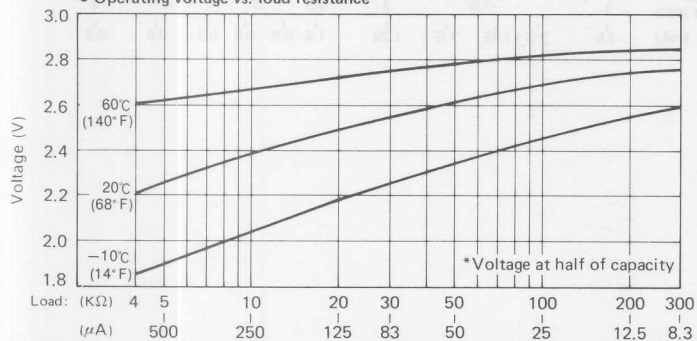
● Temperature characteristics



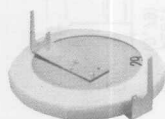
● Capacity vs. load resistance



● Operating voltage vs. load resistance



Lithium Batteries (Memory Backup Use)



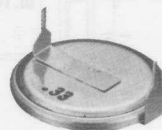
BR2325-1HC



BR2325-1HB



BR2325-1VB



BR2325-1HE



BR2325-1VG



BR2325-2HC



BR2325-2VC



BR2325-1T4



BR1225-1HD



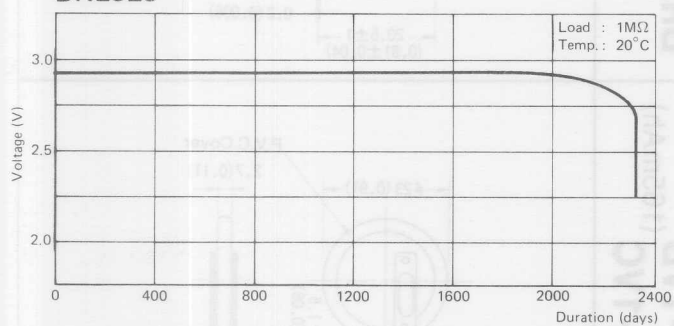
BR1225-1VD



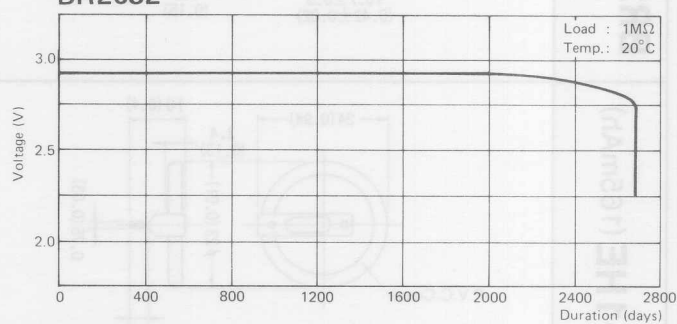
BR1225-2HC

Long term discharge characteristics

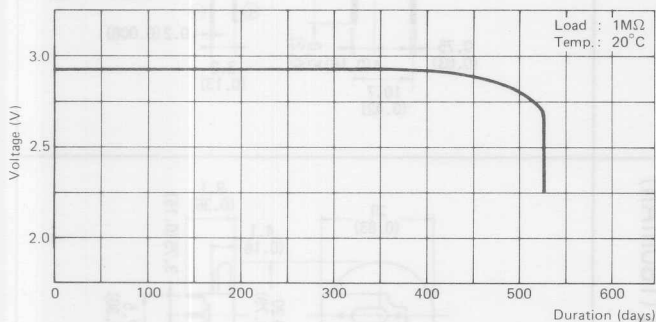
BR2325



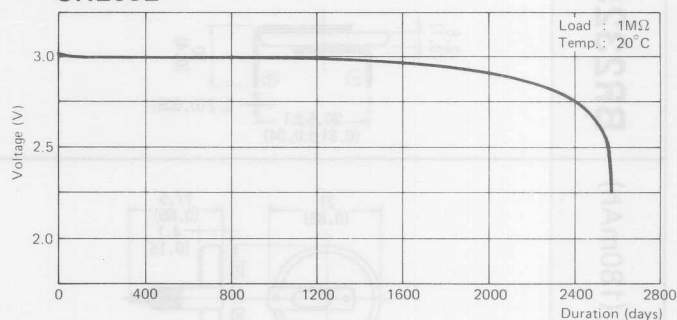
BR2032



BR1225



CR2032



3V Series

Model No.	Dimensions/mm(inch)	Model No.	Dimensions/mm(inch)
BR2032-1HE* (180mAh) -1HF	<p>Top view: 21.0 (0.83), 4.1 (0.16), 9.1 (0.36), 3.5 (0.14), $\phi 20.1$ (0.79), 0.75 (0.03)</p> <p>Side view: 3.3 (0.13), 9.1 (0.36), 0.2 (0.008), 20.5\pm1 (0.81)</p>	BR2032-1HM (180mAh)	<p>Top view: 21.0 (0.83), 4.1 (0.16), 14.3 (0.56), 3.5 (0.14), $\phi 20.1$ (0.79)</p> <p>Side view: 3.3 (0.13), 3.5 (0.14), 20.5\pm1 (0.81), 0.2 (0.008), 1.8 (0.07)</p>
BR2032-1VB* (180mAh) -1VC	<p>Top view: $\phi 20$ (0.79), 3.4 (0.13), 1.5 (0.06), 0.75 (0.03), 4.0 (0.16), 5.0 (0.2), 10.7\pm0.5 (0.42\pm0.02)</p> <p>Side view: 3.9 (0.15), 0.2 (0.008)</p>	BR2325-1HB* (165mAh) -1HC	<p>Top view: 24.0 (0.94), 9.9 (0.39), 3.4 (0.13), 5.0 (0.2), $\phi 23$ (0.91), 0.75 (0.03)</p> <p>Side view: 2.7 (0.11), 9.9 (0.39), 0.2 (0.008), 20.5\pm1 (0.81\pm0.04)</p>
BR2325-1HE (165mAh)	<p>Top view: 24 (0.94), 3.4 (0.13), 10 (0.4), $\phi 23$ (0.91), 0.75 (0.03), 3.5 (0.14)</p> <p>Side view: 2.6 (0.1), 10 (0.4), 0.2 (0.008), 20.5\pm1 (0.81\pm0.04)</p>	BR2325-1VB* (165mAh) -1VC	<p>Top view: $\phi 23$ (0.91), 2.7 (0.11), 1.5 (0.06), 0.75 (0.03), 4 (0.16), 5.0 (0.2), 10.7 (0.42)</p> <p>Side view: 3.2 (0.13), 0.2 (0.008)</p>
BR2032-1HH (180mAh)	<p>Top view: 21 (0.83), 17.5 (0.69), 4.1 (0.16), $\phi 20$ (0.79)</p> <p>Side view: 3.3 (0.13), 17.5 (0.69), 0.2 (0.008), 20.5\pm1 (0.81\pm0.04), 1.8 (0.07), 3.5 (0.14)</p>	BR2032-1HG (180mAh)	<p>Top view: 21 (0.83), 4.1 (0.16), 9.1 (0.36), 3.75 (0.15), 7.5 (0.30), $\phi 20$ (0.79)</p> <p>Side view: 3.2 (0.13), 3.5 (0.14), 20.5\pm1 (0.81\pm0.04), 0.2 (0.008), 0.75 (0.03)</p>

Note: * Without P.V.C.Cover.

For further information on dimension with tolerance, please contact with Panasonic.

3V Series

Model No.	Dimensions/mm(inch)	Model No.	Dimensions/mm(inch)
BR2032-1T2 (180mAh)	<p>Technical drawing of BR2032-1T2 battery. Top view shows a circular cell with a diameter of $\phi 20$ (0.79). The terminal diameter is $\phi 1.3$ (0.05). The terminal height is 3.0 (0.12). The terminal width is 2.0 (0.08). The terminal thickness is 0.2 (0.008). The terminal length is 7.0 (0.28). The terminal width at the base is 10.0 (0.39). The terminal thickness at the base is 3.6 (0.14).</p>	BR2325-1HM (165mAh)	<p>Technical drawing of BR2325-1HM battery. Top view shows a circular cell with a diameter of $\phi 23$ (0.91). The terminal diameter is $\phi 1.3$ (0.05). The terminal height is 3.0 (0.12). The terminal width is 2.0 (0.08). The terminal thickness is 0.2 (0.008). The terminal length is 7.0 (0.28). The terminal width at the base is 10.0 (0.39). The terminal thickness at the base is 3.6 (0.14).</p>
BR2325-1VG (165mAh)	<p>Technical drawing of BR2325-1VG battery. Top view shows a circular cell with a diameter of $\phi 23$ (0.91). The terminal diameter is $\phi 1.3$ (0.05). The terminal height is 3.0 (0.12). The terminal width is 2.0 (0.08). The terminal thickness is 0.2 (0.008). The terminal length is 7.0 (0.28). The terminal width at the base is 10.0 (0.39). The terminal thickness at the base is 3.6 (0.14).</p>	BR2325-1VS (165mAh)	<p>Technical drawing of BR2325-1VS battery. Top view shows a circular cell with a diameter of $\phi 23$ (0.91). The terminal diameter is $\phi 1.3$ (0.05). The terminal height is 3.0 (0.12). The terminal width is 2.0 (0.08). The terminal thickness is 0.2 (0.008). The terminal length is 7.0 (0.28). The terminal width at the base is 10.0 (0.39). The terminal thickness at the base is 3.6 (0.14).</p>
BR2325-1VN (165mAh)	<p>Technical drawing of BR2325-1VN battery. Top view shows a circular cell with a diameter of $\phi 23$ (0.91). The terminal diameter is $\phi 1.3$ (0.05). The terminal height is 3.0 (0.12). The terminal width is 2.0 (0.08). The terminal thickness is 0.2 (0.008). The terminal length is 7.0 (0.28). The terminal width at the base is 10.0 (0.39). The terminal thickness at the base is 3.6 (0.14).</p>	BR2325-1TN (165mAh)	<p>Technical drawing of BR2325-1TN battery. Top view shows a circular cell with a diameter of $\phi 23$ (0.91). The terminal diameter is $\phi 1.3$ (0.05). The terminal height is 3.0 (0.12). The terminal width is 2.0 (0.08). The terminal thickness is 0.2 (0.008). The terminal length is 7.0 (0.28). The terminal width at the base is 10.0 (0.39). The terminal thickness at the base is 3.6 (0.14).</p>
BR2325-1T4 (165mAh)	<p>Technical drawing of BR2325-1T4 battery. Top view shows a circular cell with a diameter of $\phi 23$ (0.91). The terminal diameter is $\phi 1.3$ (0.05). The terminal height is 3.0 (0.12). The terminal width is 2.0 (0.08). The terminal thickness is 0.2 (0.008). The terminal length is 7.0 (0.28). The terminal width at the base is 10.0 (0.39). The terminal thickness at the base is 3.6 (0.14).</p>	BR2032-1HS (180mAh)	<p>Technical drawing of BR2032-1HS battery. Top view shows a circular cell with a diameter of $\phi 20$ (0.79). The terminal diameter is $\phi 1.3$ (0.05). The terminal height is 3.0 (0.12). The terminal width is 2.0 (0.08). The terminal thickness is 0.2 (0.008). The terminal length is 7.0 (0.28). The terminal width at the base is 10.0 (0.39). The terminal thickness at the base is 3.6 (0.14).</p>

Note: ※ Without P.V.C.Cover.

For further information on dimension with tolerance, please contact with Panasonic.

3V Series

6V Series

Model No.	Dimensions/mm(inch)	Model No.	Dimensions/mm(inch)
BR2325-1GB (165mAh)	<p>Top view: 24.0 (0.94), 3.4 (0.13), 16.4 (0.65), 0.75 (0.03), 5.1 (0.2), 10.2 (0.4), $\phi 22.8$ (0.9), 2.5 (0.1)</p> <p>Side view: 16.4 (0.65), 3.5 (0.14), 0.75 (0.03), 20.5 \pm 1.0 (0.81 \pm 0.04), 0.2 (0.008)</p> <p>Terminal view: 3.5 (0.14), 0.75 (0.03)</p>	BR2325-2HC (165mAh)	<p>Top view: 24.0 \pm 1 (0.94 \pm 0.04), 12.7 (0.5), 6.2 (0.24), 5.0 (0.2), 0.75 (0.03), $\phi 23$ (0.91)</p> <p>Side view: 12.7 (0.5), 5.5 (0.22), 20.5 \pm 1.0 (0.81 \pm 0.04), 0.2 (0.008)</p> <p>Terminal view: 5.5 (0.22)</p>
BR1225-1HC (38mAh) -1HD*	<p>Top view: 13.5 (0.53), 9.7 (0.38), 5.0 (0.20), 0.75 (0.03), 3.3 (0.13), $\phi 12.7$ (0.5), 3.2 (0.13)</p> <p>Side view: 2.5 (0.1), 10.0 (0.39), 0.2 (0.008)</p> <p>Terminal view: 2.5 (0.1)</p>	BR2325-2VC (165mAh)	<p>Top view: $\phi 23$ (0.91), 5.5 (0.22), 1.5 (0.06), 0.75 (0.03), 4 (0.16), 10.7 \pm 0.5 (0.42 \pm 0.02)</p> <p>Side view: 5.5 (0.22), 0.2 (0.008)</p> <p>Terminal view: 5.5 (0.22)</p>
BR1225-1VC (38mAh) -1VD*	<p>Top view: $\phi 12.7$ (0.5), 1.5 (0.06), 0.75 (0.03), 5.0 (0.2), 3.3 (0.13), 3.0 (0.12), 0.2 (0.008)</p> <p>Side view: 2.5 (0.1), 10.0 (0.39), 0.2 (0.008)</p> <p>Terminal view: 2.5 (0.1)</p>	BR1225-2HC (38mAh)	<p>Top view: 13.5 (0.53), 13.7 (0.54), 7.2 (0.28), 5.0 (0.2), 0.75 (0.03), $\phi 12.7$ (0.5), 3.2 (0.13)</p> <p>Side view: 6.3 (0.25), 10.0 (0.39), 0.2 (0.008)</p> <p>Terminal view: 6.3 (0.25)</p>
BR1225-1VF (38mAh)	<p>Top view: $\phi 12.7$ (0.5), 10.0 (0.39), 0.75 (0.03), 3.8 (0.15), 14.0 (0.55), 0.5 (0.02)</p> <p>Side view: 14.0 (0.55), 0.5 (0.02)</p> <p>Terminal view: 14.0 (0.55)</p>	BR2325-2T4 (165mAh)	<p>Top view: $\phi 23$ (0.91), 5.5 (0.22), $\phi 1.5$ (0.06), 2.5 (0.1), 4 (0.16), 7.45 \pm 0.5 (0.29 \pm 0.02), 3.5 (0.14), 6.0 (0.24)</p> <p>Side view: 5.5 (0.22), 6.0 (0.24)</p> <p>Terminal view: 5.5 (0.22)</p>

Note: * Without P.V.C.Cover.

For further information on dimension with tolerance, please contact with Panasonic.